TO2T60"Z9T98860

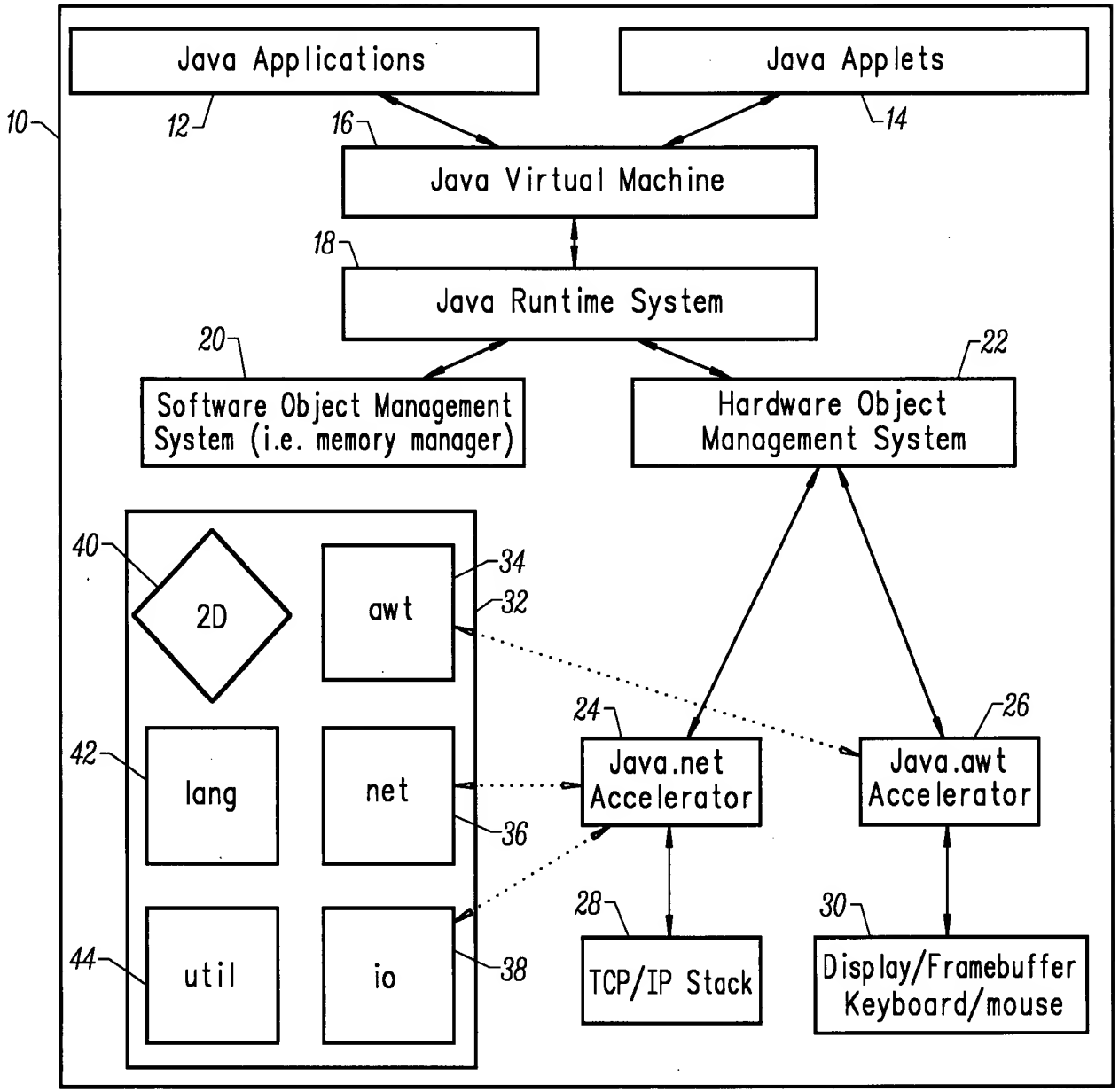



FIG. 1

TO2T60" 29T98860

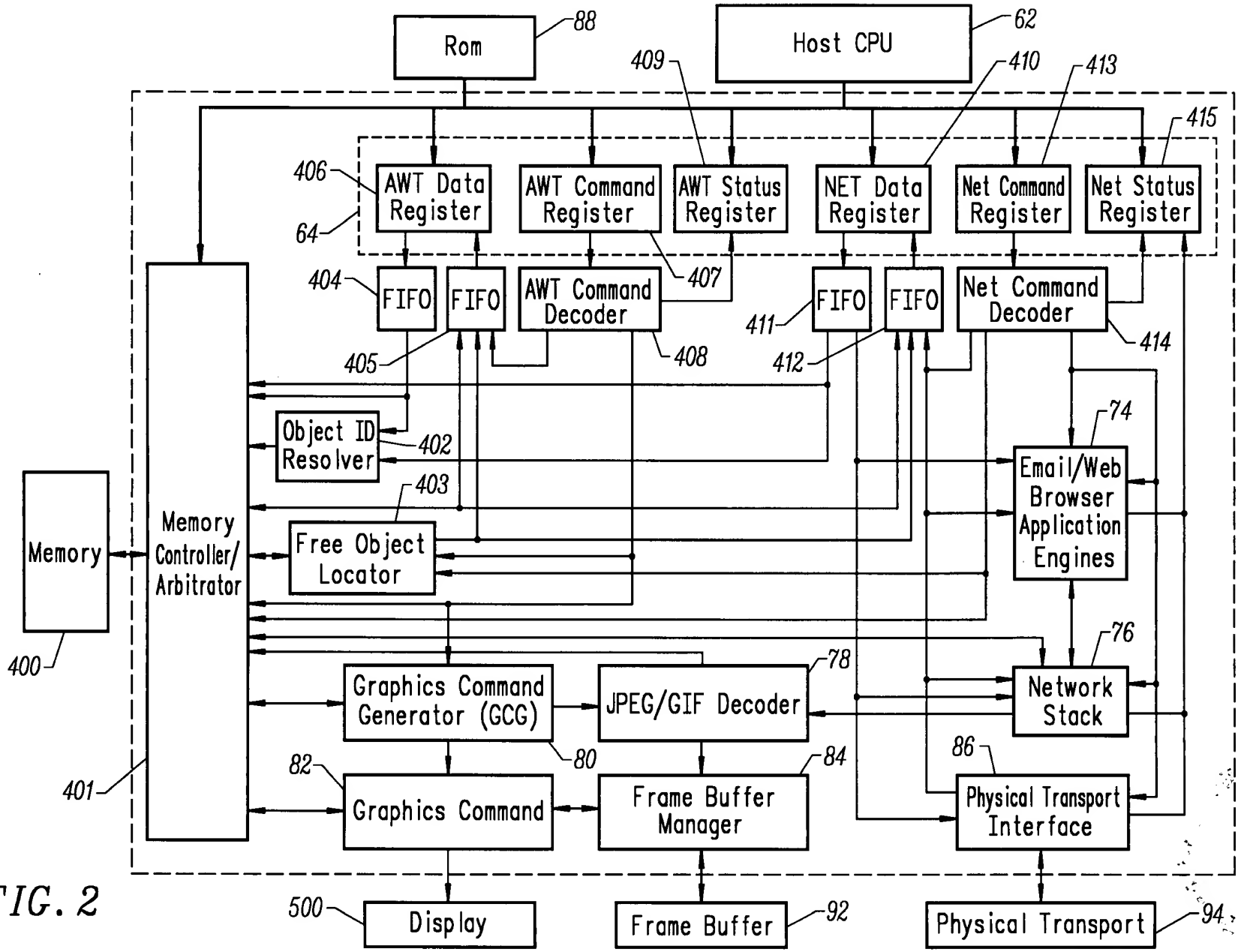



FIG. 2

FD2760 "29T98860

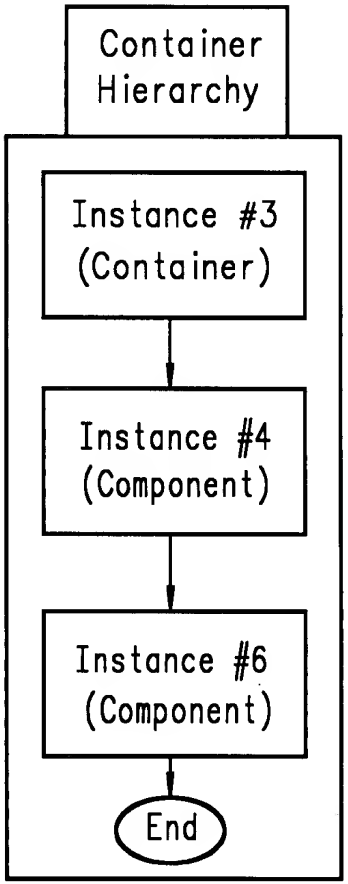


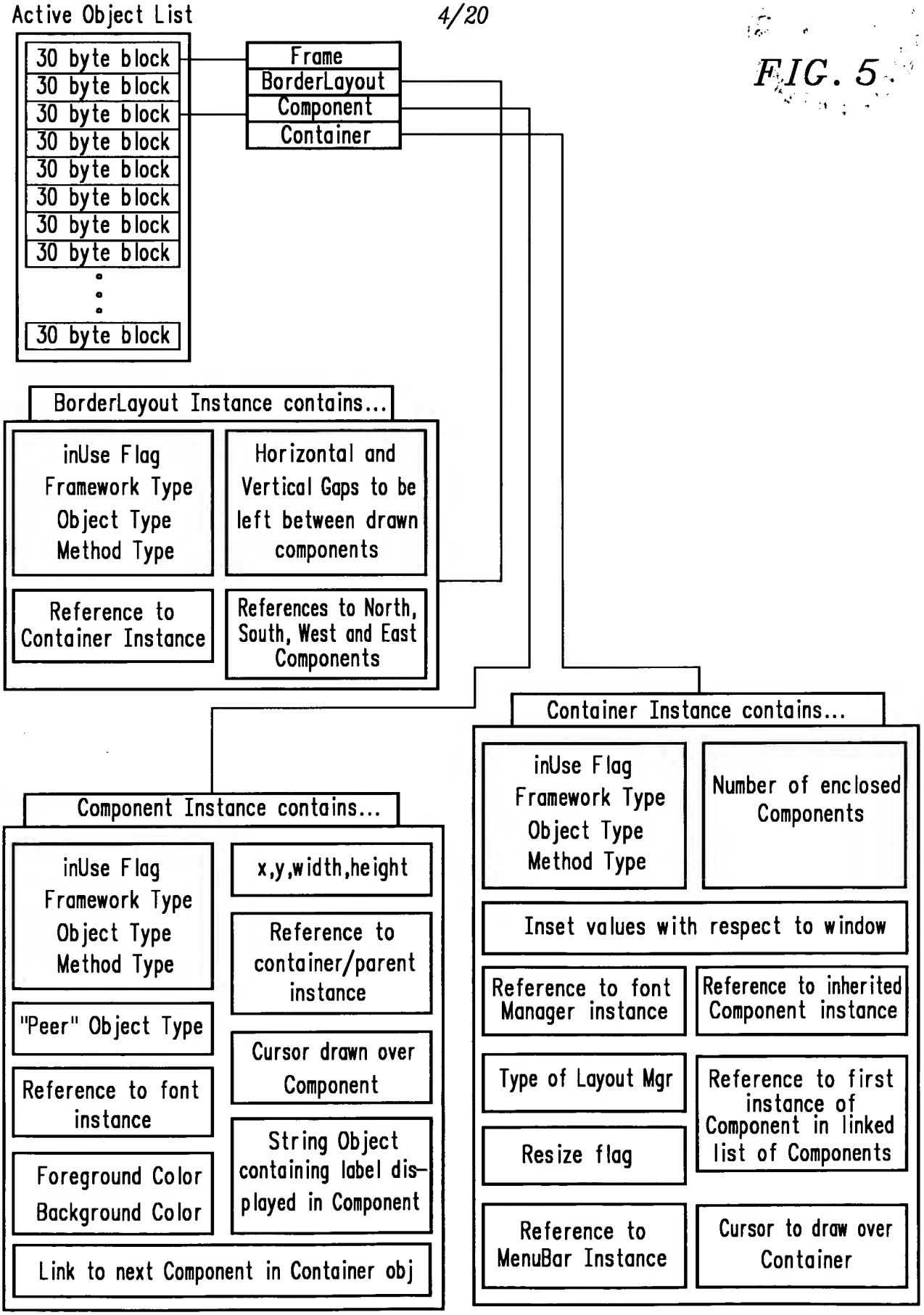

FIG. 4

Object List After Object Instantiations and Delection

| Object# | Memory Block | InUse Flag | Object Type | Obj Link |
|---|---|---|---|---|
| 1 | 30 byte block | In Use | Frame | |
| 2 | 30 byte block | In Use | GridLayout | |
| 3 | 30 byte block | In Use | Container | 4 |
| 4 | 30 byte block | In Use | Component | 6 |
| 5 | 30 byte block | Free | n/a | |
| 6 | 30 byte block | In Use | Component | 0 |
| • | | | | |
| • | | | | |
| • | | | | |
| n | 30 byte block | Free | | |

FIG. 3

FIG. 5




09869457 - 092401

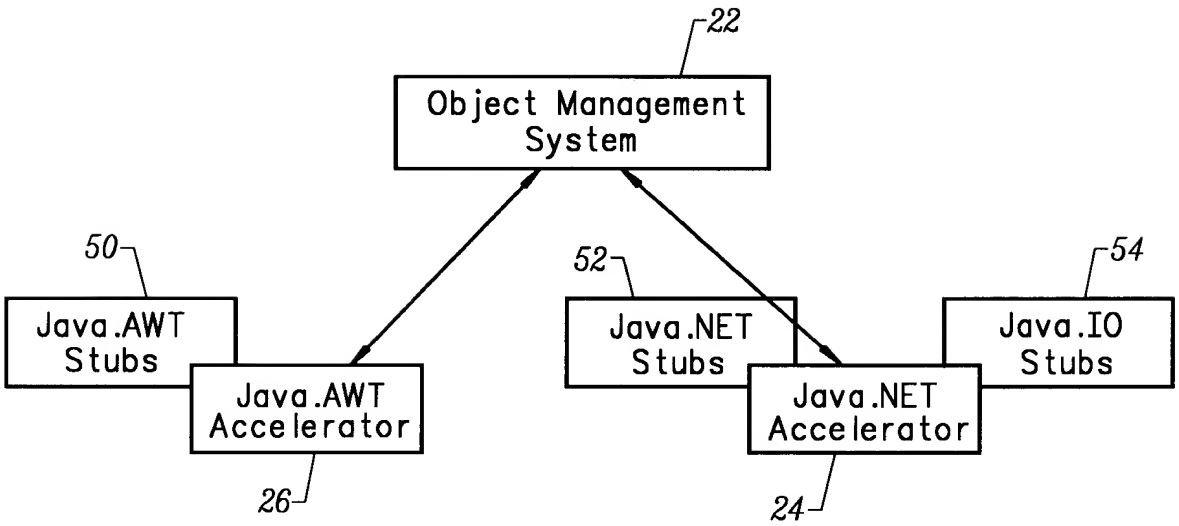

22
Object Management System
50
Java.AWT Stubs
Java.AWT Accelerator
26
52
Java.NET Stubs
Java.NET Accelerator
24
54
Java.IO Stubs

FIG. 6

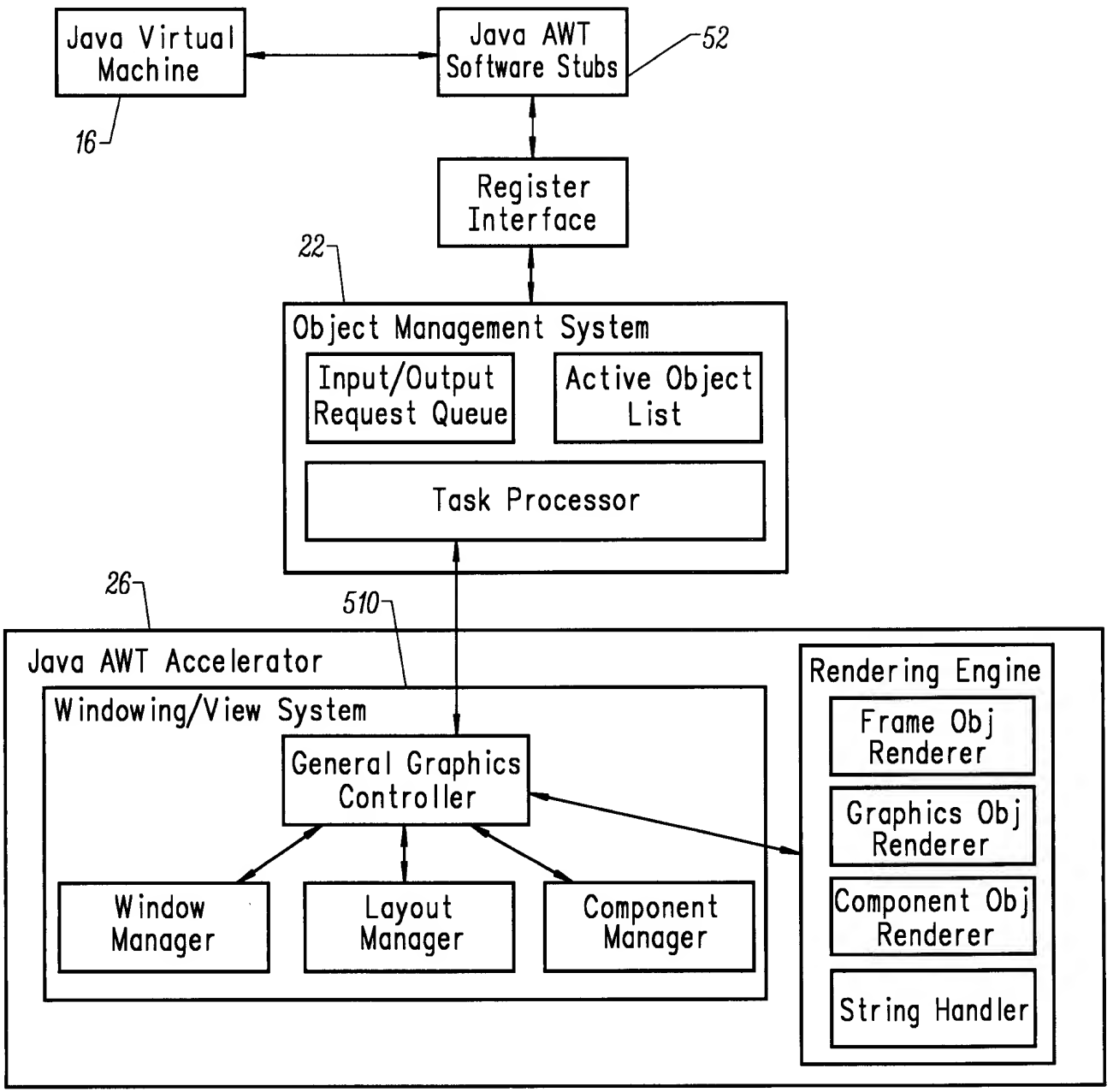

Java Virtual Machine
16
Java AWT Software Stubs
52
Register Interface
22
Object Management System
Input/Output Request Queue
Active Object List
Task Processor
26
510
Java AWT Accelerator
Windowing/View System
General Graphics Controller
Window Manager
Layout Manager
Component Manager
Rendering Engine
Frame Obj Renderer
Graphics Obj Renderer
Component Obj Renderer
String Handler

FIG. 7

T02T60"297T9886O

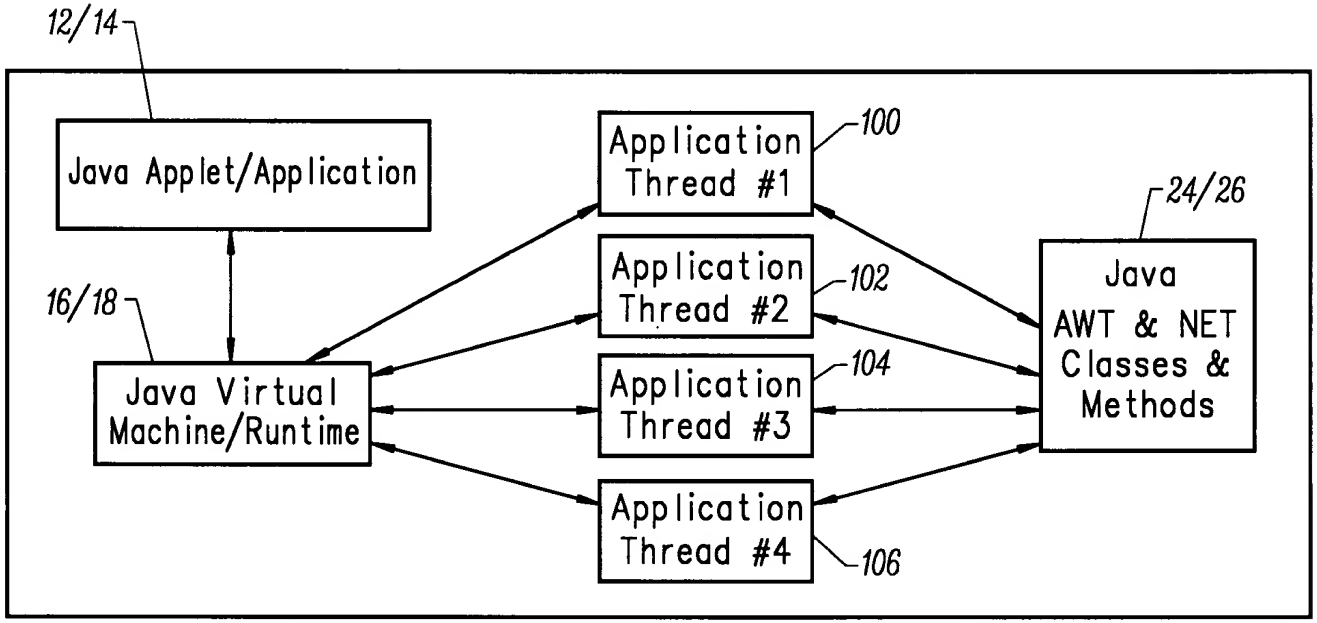



*FIG. 8*

TO2T60"Z9T98860

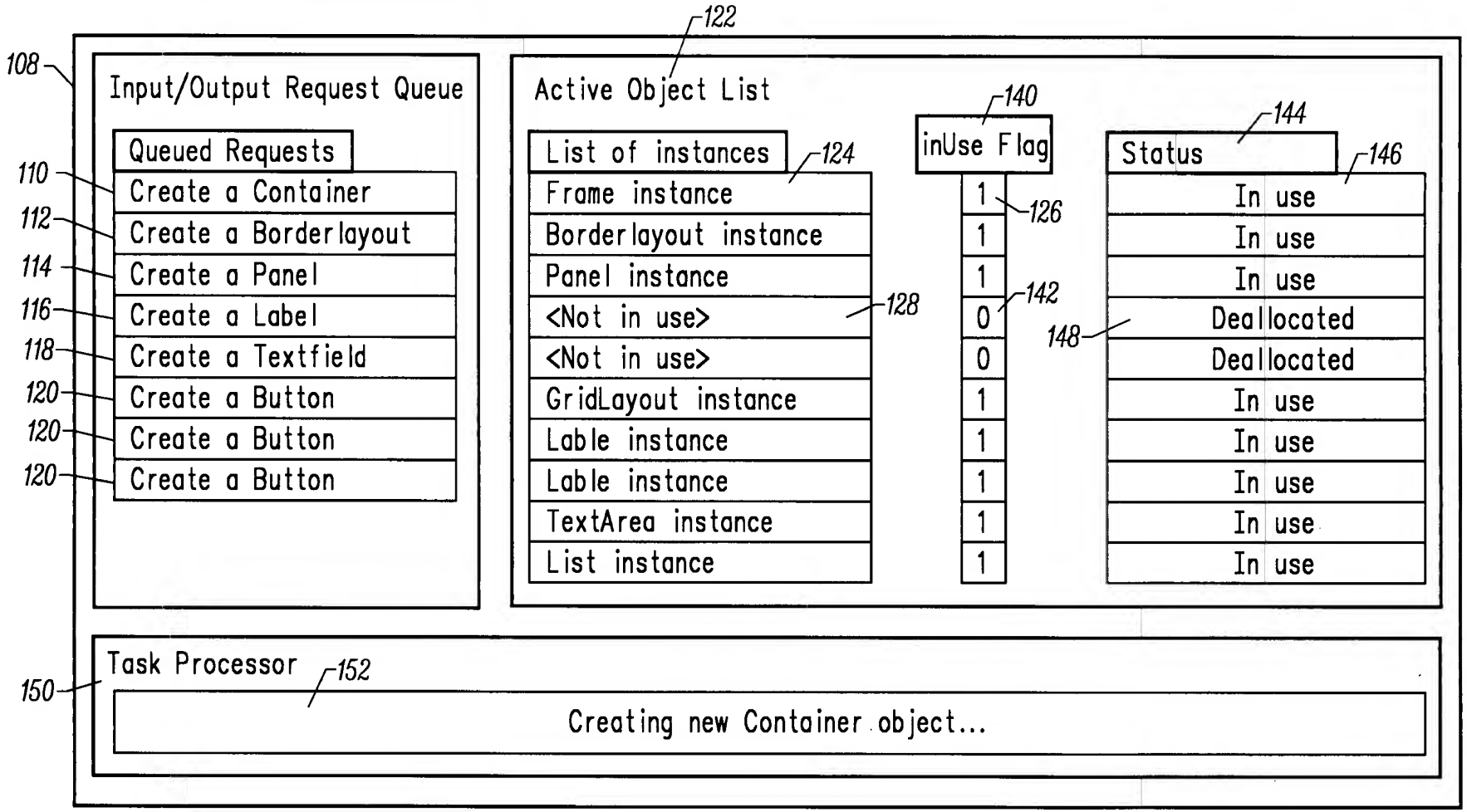
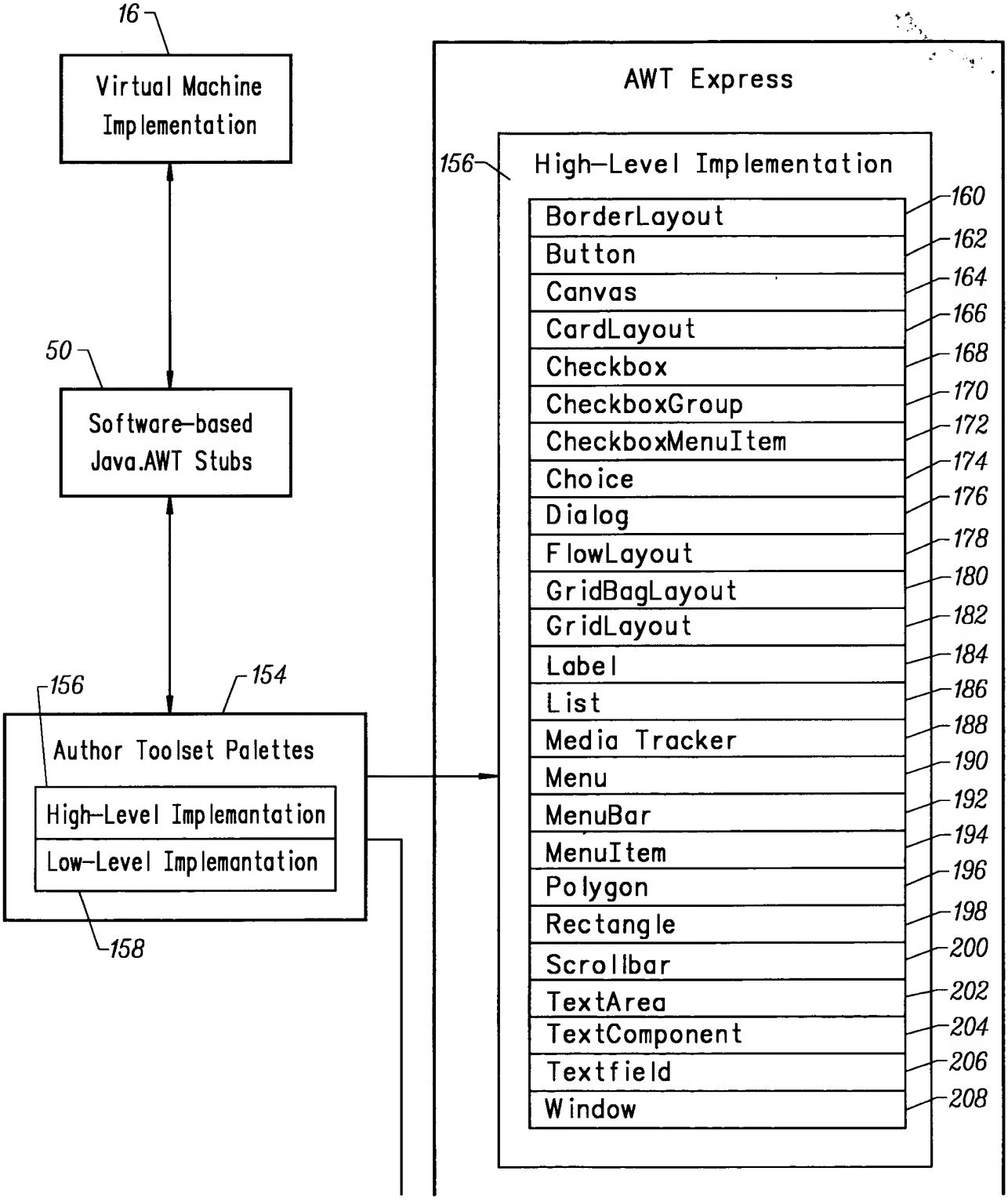



FIG. 9




See FIG. 10B

FIG. 10A

See FIG. 10A

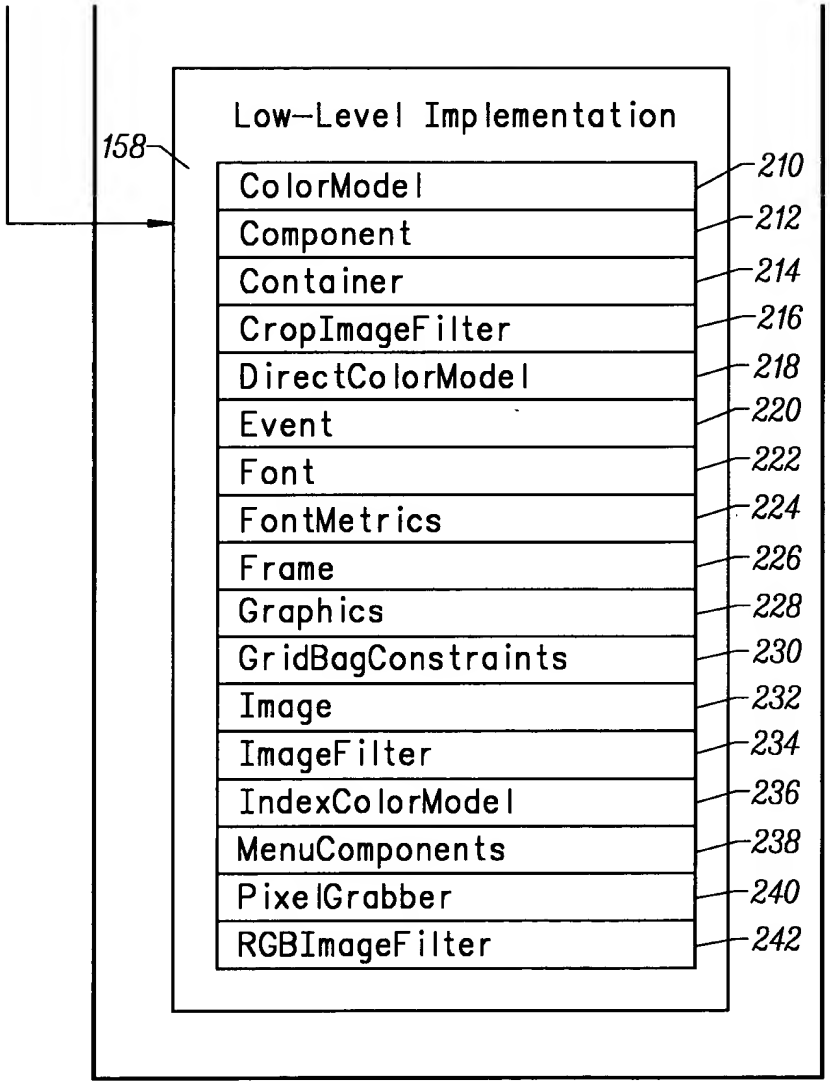



FIG. 10B

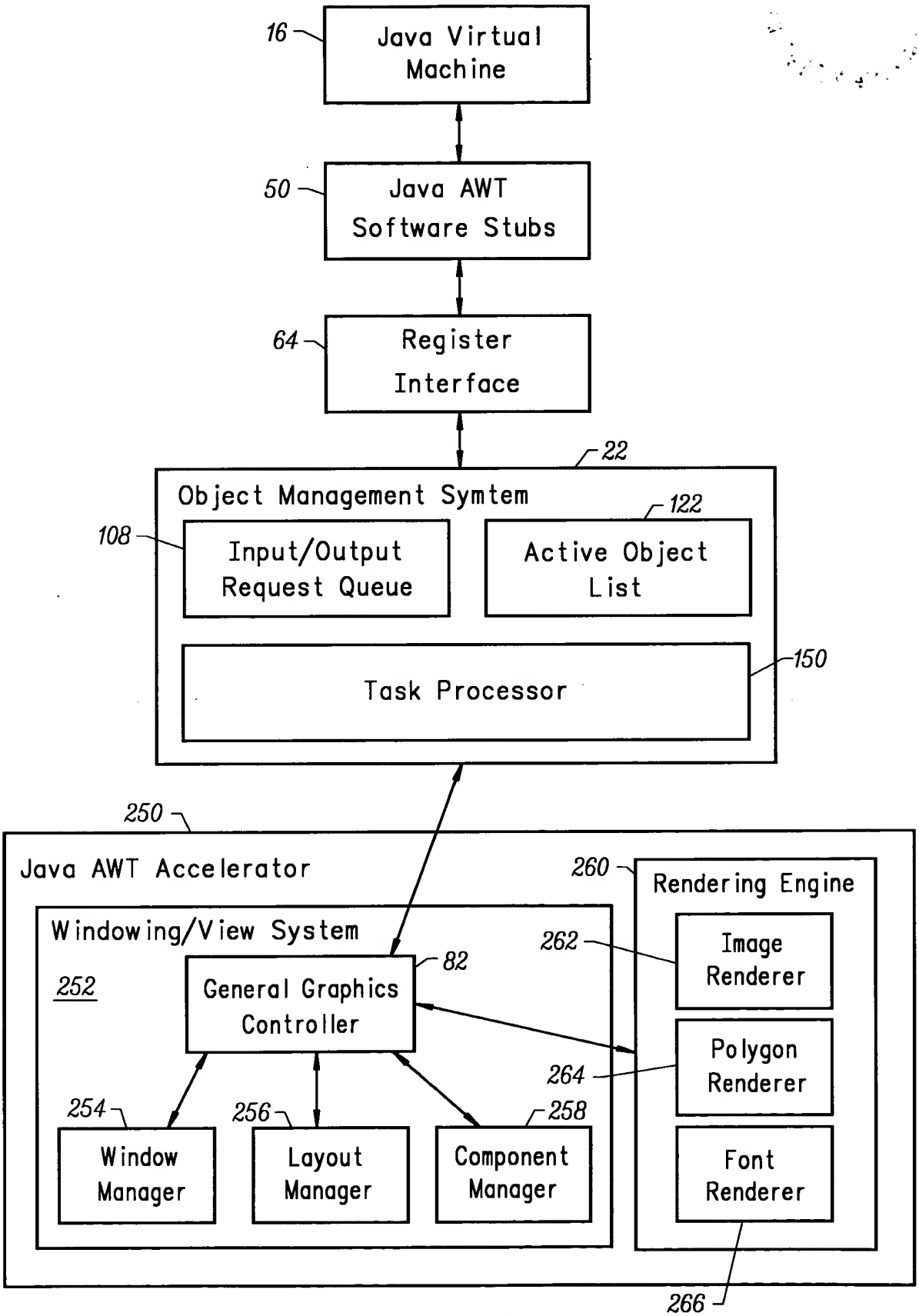

16
Java Virtual Machine
50
Java AWT Software Stubs
64
Register Interface
22
Object Management Symtem
108
Input/Output Request Queue
122
Active Object List
150
Task Processor
250
Java AWT Accelerator
Windowing/View System
252
General Graphics Controller
82
254
Window Manager
256
Layout Manager
258
Component Manager
260
Rendering Engine
262
Image Renderer
Polygon Renderer
264
Font Renderer
266

FIG. 11

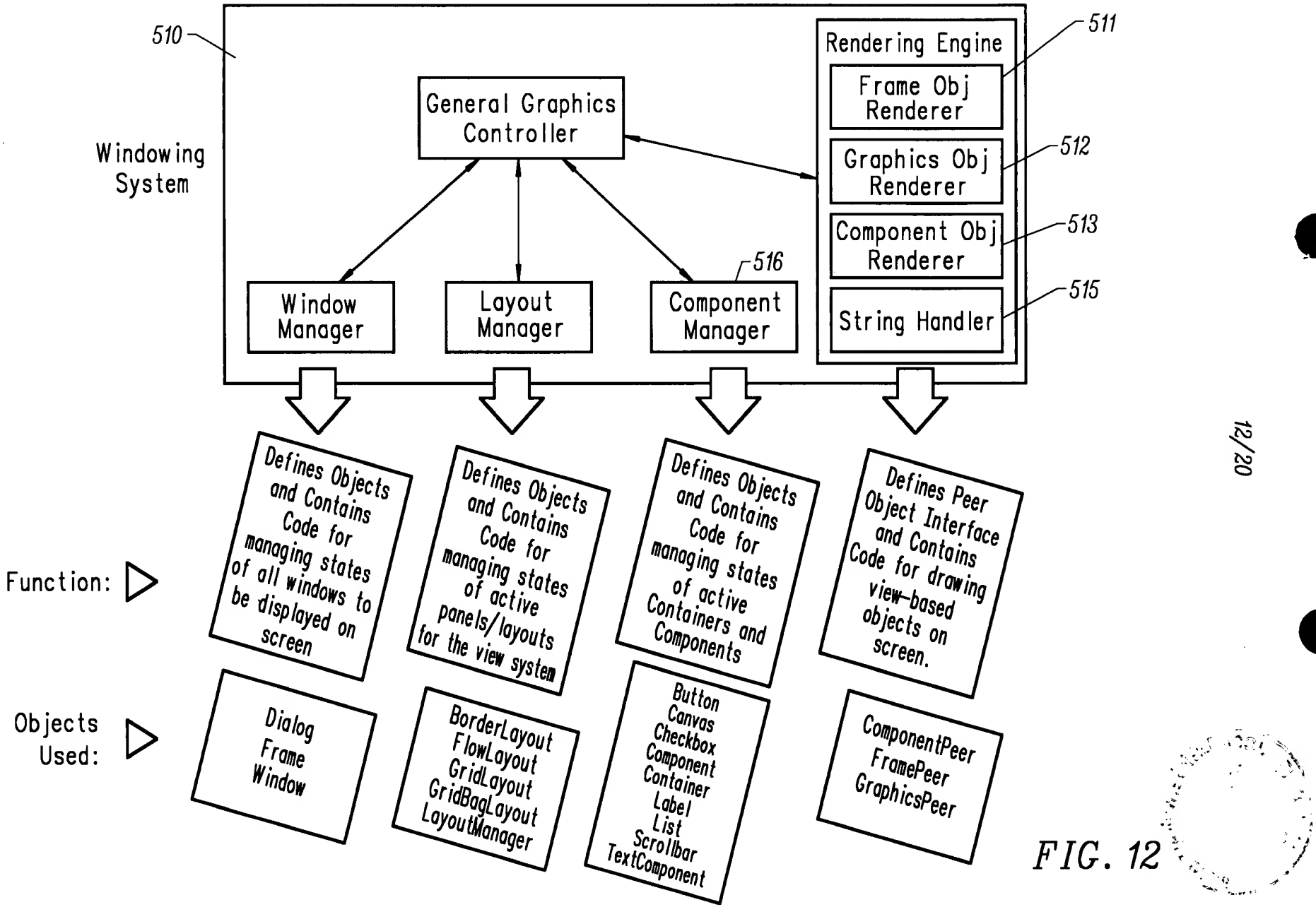

510
Windowing System
General Graphics Controller
Rendering Engine
Frame Obj Renderer
Graphics Obj Renderer
Component Obj Renderer
String Handler
511
512
513
515
516
Window Manager
Layout Manager
Component Manager
Function:
Defines Objects and Contains Code for managing states of all windows to be displayed on screen
Defines Objects and Contains Code for managing states of active panels/layouts for the view system
Defines Objects and Contains Code for managing states of active Containers and Components
Defines Peer Object Interface and Contains Code for drawing view-based objects on screen.
Objects Used:
Dialog
Frame
Window
BorderLayout
FlowLayout
GridLayout
GridBagLayout
LayoutManager
Button
Canvas
Checkbox
Component
Container
Label
List
Scrollbar
TextComponent
ComponentPeer
FramePeer
GraphicsPeer

FIG. 12

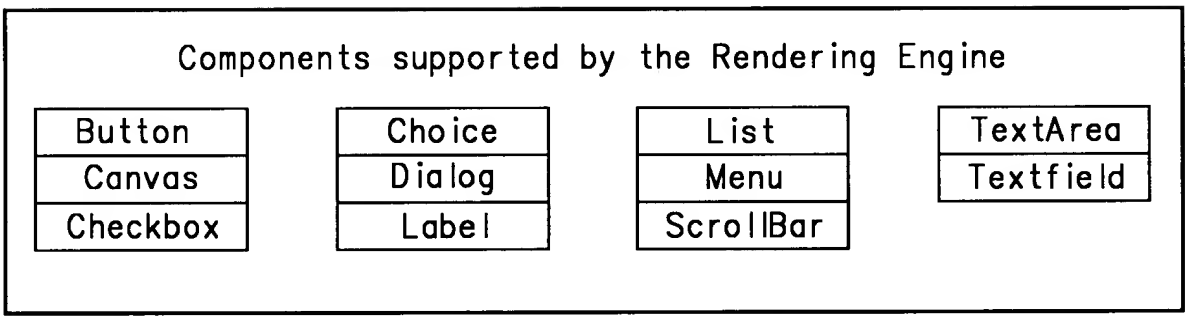



FIG. 13

Docket No. 50277-0501

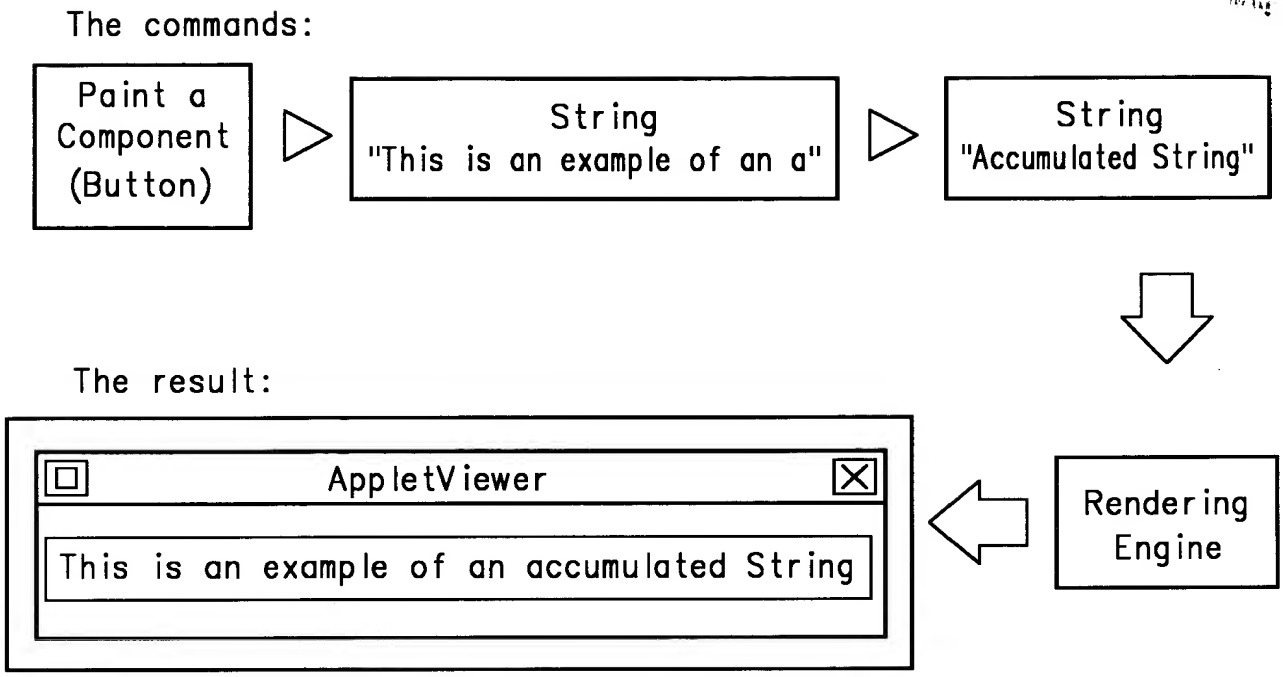



*FIG. 14*

Painting Methods:

| | |
|---|---|
| clearRect | drawRect |
| clipRect | drawRoundRect |
| copyArea | fill3DRect |
| draw3DRect | fillArc |
| drawArc | fillOval |
| drawLine | fillPolygon |
| drawOval | fillRect |
| drawPolygon | fillRoundRect |

Other Methods:

| | |
|---|---|
| drawImage | setFont |
| drawString | setPaintMode |
| setColor | translate |

*FIG. 15*

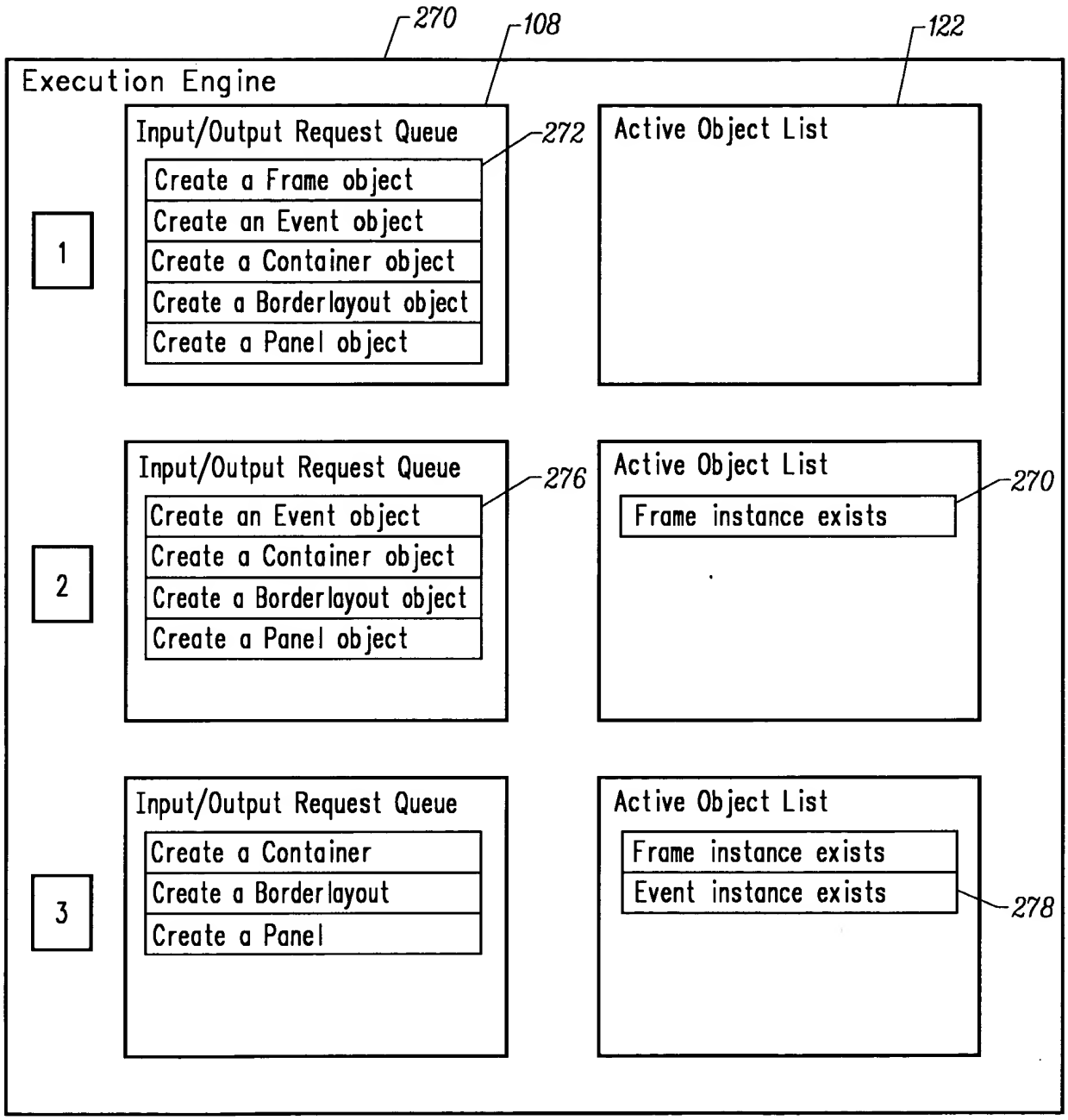

270
108
122
Execution Engine
Input/Output Request Queue
272
Create a Frame object
Create an Event object
Create a Container object
Create a Borderlayout object
Create a Panel object
Active Object List
1
Input/Output Request Queue
276
Create an Event object
Create a Container object
Create a Borderlayout object
Create a Panel object
Active Object List
Frame instance exists
270
2
Input/Output Request Queue
Create a Container
Create a Borderlayout
Create a Panel
Active Object List
Frame instance exists
Event instance exists
278
3

FIG. 16

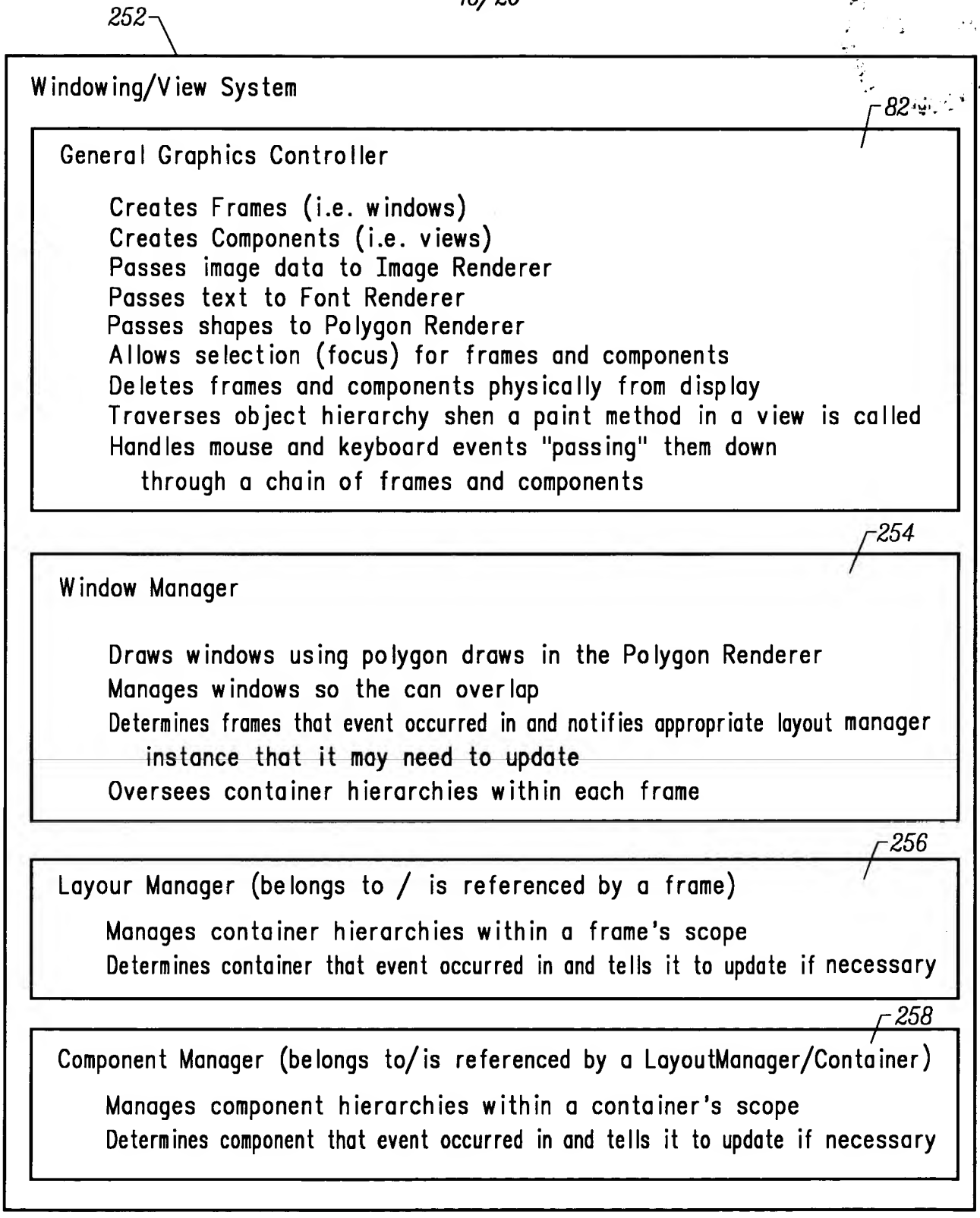

252
Windowing/View System
82
General Graphics Controller
Creates Frames (i.e. windows)
Creates Components (i.e. views)
Passes image data to Image Renderer
Passes text to Font Renderer
Passes shapes to Polygon Renderer
Allows selection (focus) for frames and components
Deletes frames and components physically from display
Traverses object hierarchy shen a paint method in a view is called
Handles mouse and keyboard events "passing" them down
through a chain of frames and components
254
Window Manager
Draws windows using polygon draws in the Polygon Renderer
Manages windows so the can overlap
Determines frames that event occurred in and notifies appropriate layout manager
instance that it may need to update
Oversees container hierarchies within each frame
256
Layour Manager (belongs to / is referenced by a frame)
Manages container hierarchies within a frame's scope
Determines container that event occurred in and tells it to update if necessary
258
Component Manager (belongs to/is referenced by a LayoutManager/Container)
Manages component hierarchies within a container's scope
Determines component that event occurred in and tells it to update if necessary

FIG. 17

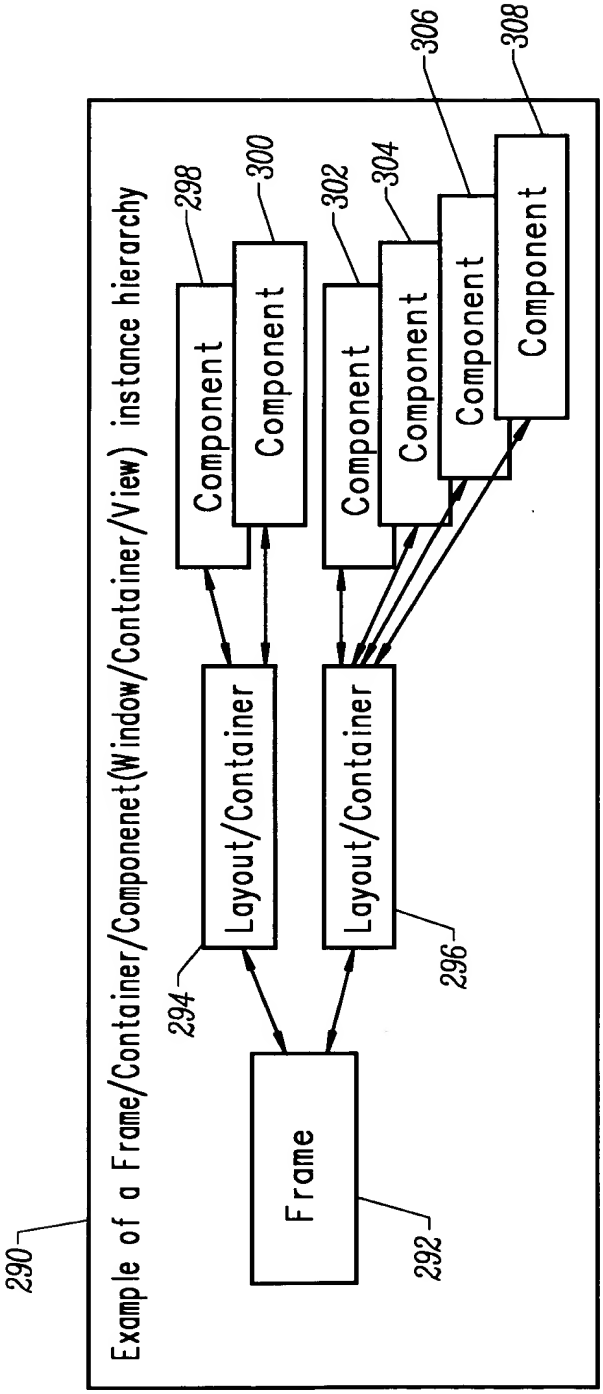

Example of a Frame/Container/Componenet(Window/Container/View) instance hierarchy
290
Frame
292
Layout/Container
294
Layout/Container
296
Component
298
Component
300
Component
302
Component
304
Component
306
Component
308

FIG. 18

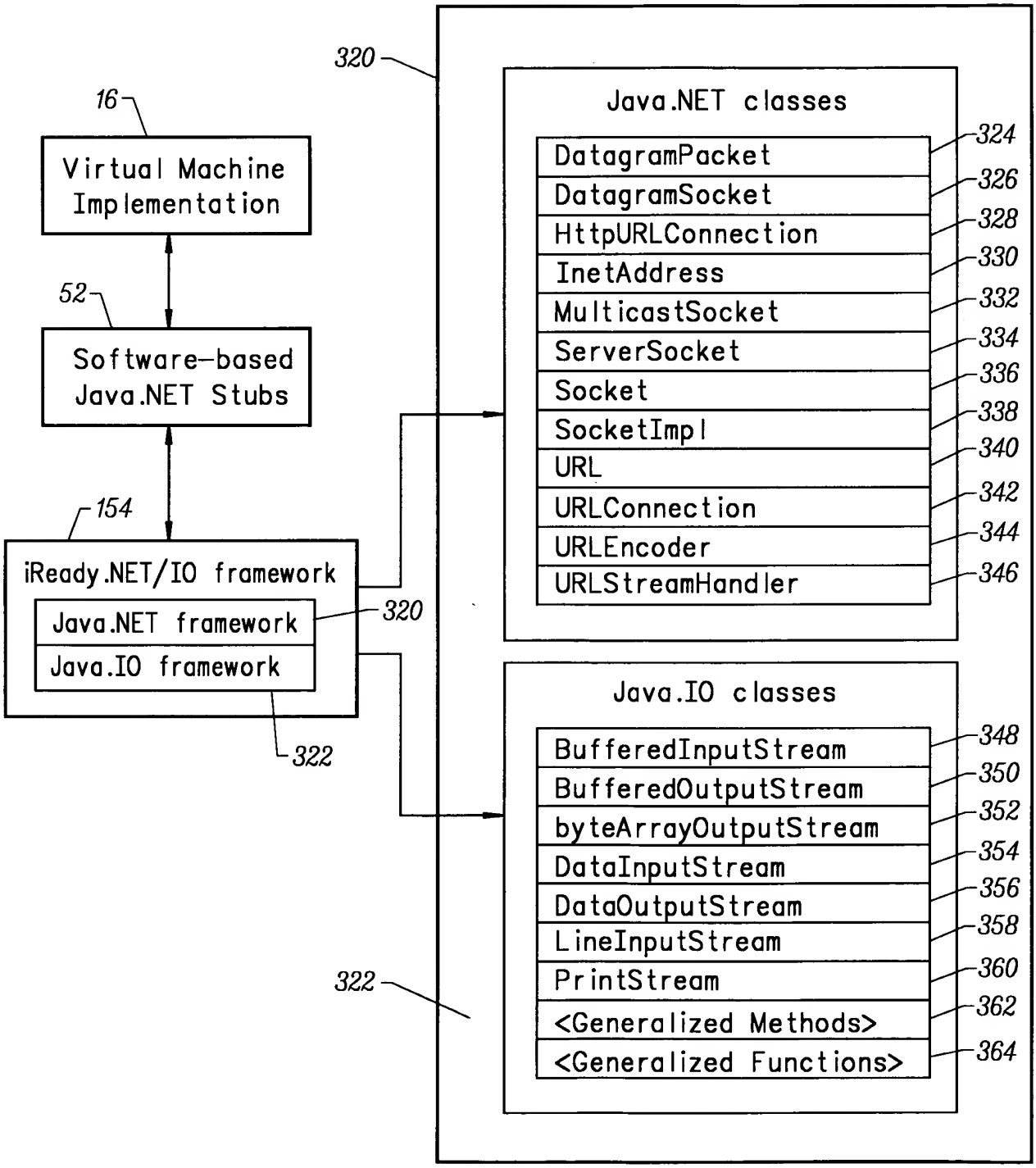

320
16
Virtual Machine Implementation
52
Software-based Java.NET Stubs
154
iReady.NET/IO framework
Java.NET framework
Java.IO framework
320
322
322
Java.NET classes
DatagramPacket
DatagramSocket
HttpURLConnection
InetAddress
MulticastSocket
ServerSocket
Socket
SocketImpl
URL
URLConnection
URLEncoder
URLStreamHandler
324
326
328
330
332
334
336
338
340
342
344
346
Java.IO classes
BufferedInputStream
BufferedOutputStream
byteArrayOutputStream
DataInputStream
DataOutputStream
LineInputStream
PrintStream
<Generalized Methods>
<Generalized Functions>
348
350
352
354
356
358
360
362
364

FIG. 19

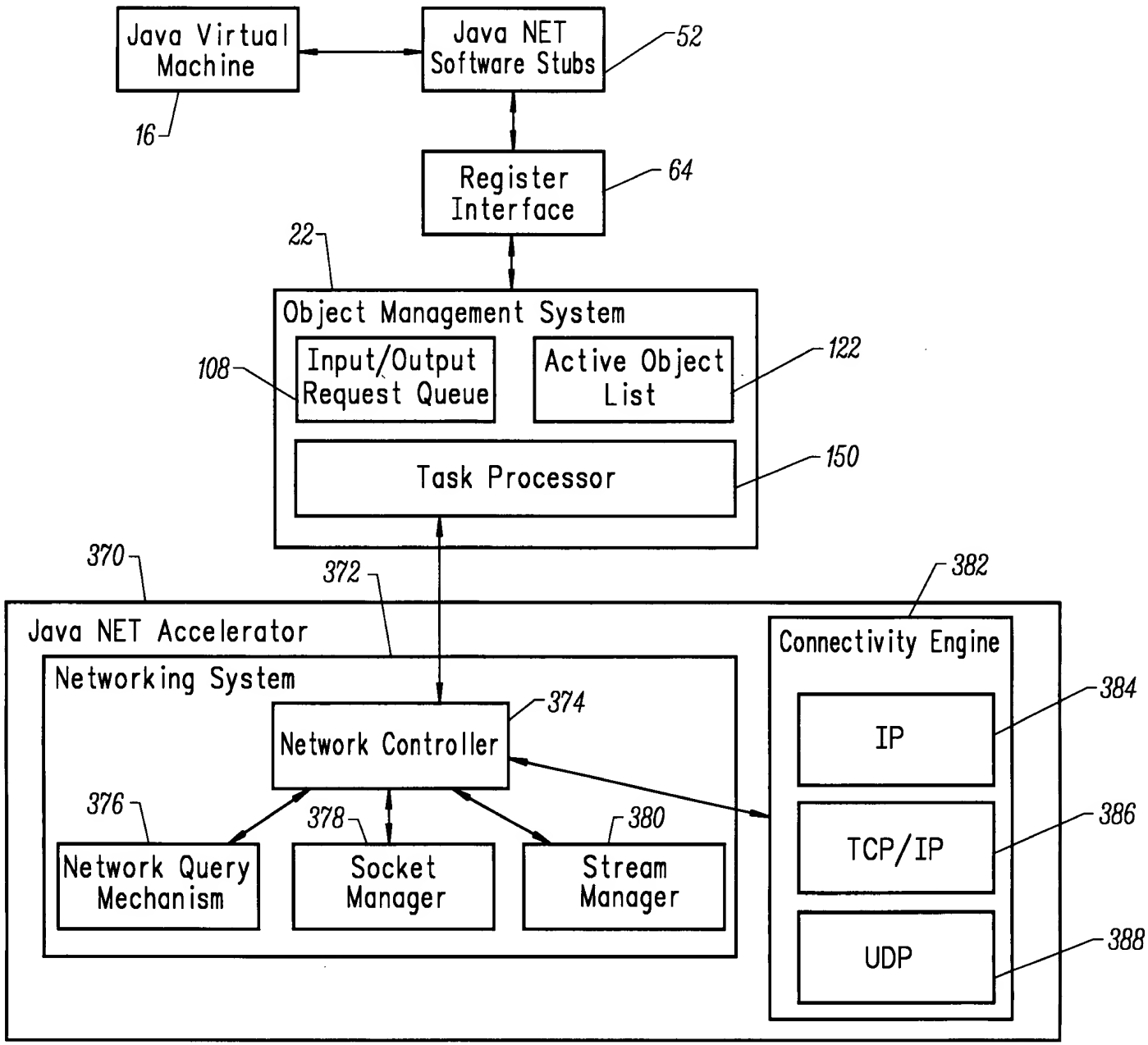

Java Virtual Machine
16
Java NET Software Stubs
52
Register Interface
64
22
Object Management System
108
Input/Output Request Queue
Active Object List
122
Task Processor
150
370
372
382
Java NET Accelerator
Networking System
Network Controller
374
376
378
380
Network Query Mechanism
Socket Manager
Stream Manager
Connectivity Engine
IP
384
TCP/IP
386
UDP
388

FIG. 20

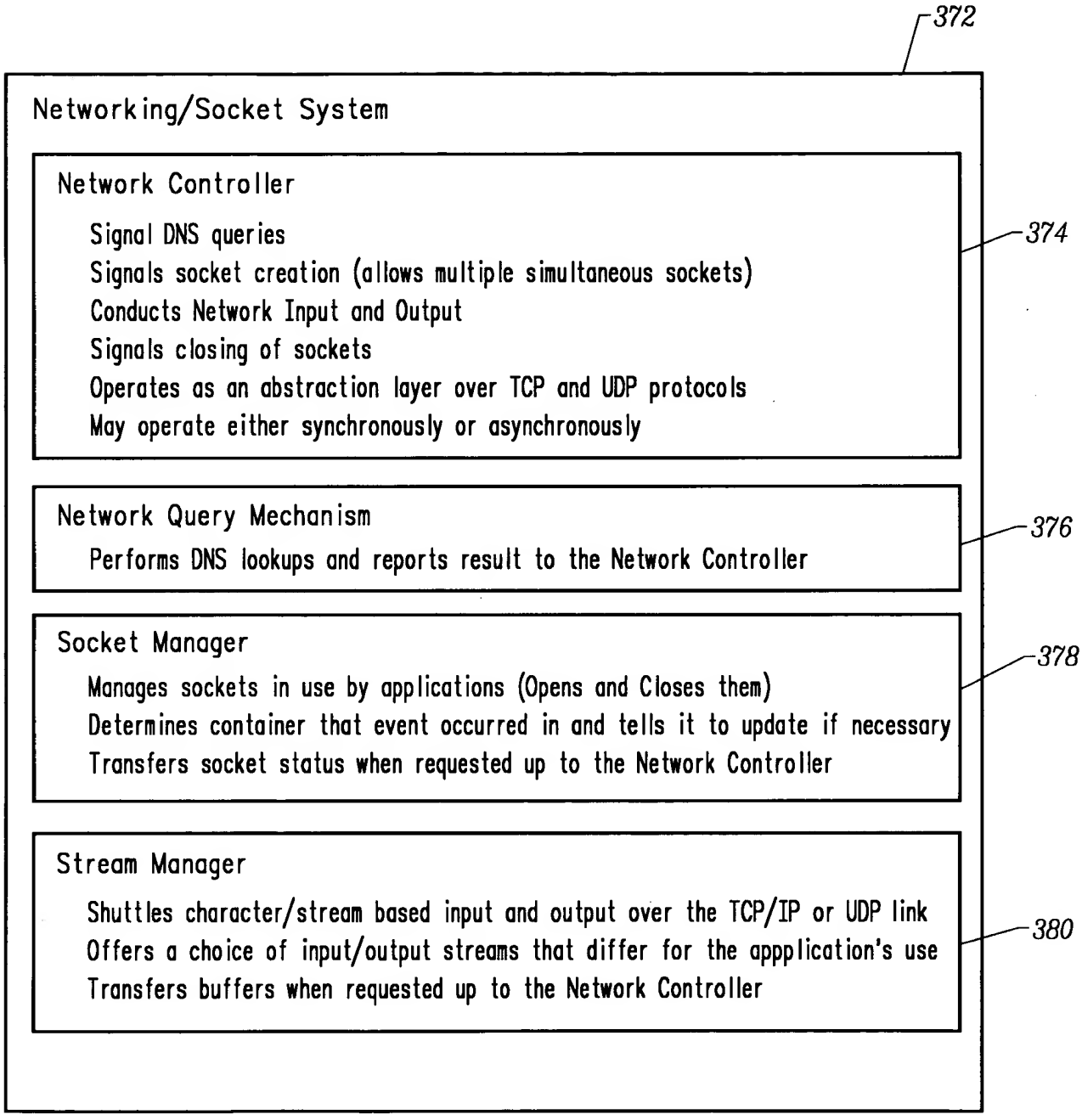



FIG. 21

Docket No. 50277-0268